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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,173

07/17/2006

HirotaKa Kawabata

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EXAMINER

BOBISH, CHRISTOPHER S

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,173	Applicant(s) KAWABATA ET AL.	
	Examiner CHRISTOPHER BOBISH	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 7 and 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is unclear as to whether the applicant intends to claim a single oil having different characteristics at different temperatures, or multiple oils each having their own set of characteristics.

Claim 7 and 14 recite that the oil in claims 1 and 2 is formed of a "plurality of oils" having a first oil equal in evaporation temperature to an evaporation temperature of the oil. However this feature is not discussed in the specification or shown in the drawings; rather the specification states "the oil is formed of *single* oil nearly equal in evaporation temperature" (paragraphs [0046, 0080, 0097]). There is no teaching of a first oil being equal to another oil.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (US Patent No. 5,542,266).

Suzuki teaches:

limitations from claim 1, a refrigerant compressor **(1)** comprising: a hermetic container **(15)** which internally stores oil **(6)** and also accommodates a compression mechanism **(4)** for compressing refrigerant gas **(C. 3 Lines 27-57)**, wherein the oil ranges from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG 8 **(C. 4 Lines 17-19)**;

Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kojima et al (US PGPub No. 2004/0191094 A1)

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The applied reference has a common Inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Kojima teaches:

limitations from claim 1, a refrigerant compressor (**FIG. 1**) comprising: a hermetic container (**101**) which internally stores oil (**112**) and also accommodates a compression mechanism (**102**) for compressing refrigerant gas (**Page 2 paragraph [0028]**), wherein the oil ranges from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG 8 (**[0028, 0041], oil viscosity of 5-10 cst**);

limitations from claim 5, wherein the compression mechanism (**102**) is a reciprocating compression mechanism (**Page 2 paragraph [0033]**);

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2).

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Kwon teaches:

limitations from claim 1, a refrigerant compressor (**FIG. 2**) comprising: a hermetic container (**24**) which internally stores oil (**62**) and also accommodates a compression mechanism (**28**) for compressing refrigerant gas (**C. 4 Lines 11-20**), wherein the oil ranges from a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG 8 (**C. 3 Lines 38-40**);

Kwon discloses (**in C. 3 Lines 38-40**) a viscosity range for the lubricant used in the compressor (**mm²/s is a known equivalent to centistokes (cst)**); The range appears to overlap the range recited in claim 1 (VG3-VG8) and while the ranges are not exactly the same, it would have been obvious to one having ordinary skill in the art of compressors to choose a range (including a viscosity from the overlapping portion) that would best suit a specific compressor arrangement; Kwon specifically teaches choosing oils with appropriate characteristics to accommodate a chosen refrigerant without producing such harmful effects as sludge, etc (**C. 1 Lines 54-60 and C. 2 Lines 15-34**);

Furthermore, it would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use an oil within the range of claim 1, as suggested by Kwon for the reasons stated above (lubrication, reduced sludge, etc), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

limitations from claim 3, wherein the refrigerant is R600a (**C. 5 Lines 31-46**) and the oil is a mineral oil or synthetic (**C. 5 Lines 50-55**);

limitations from claim 5, wherein the compression mechanism is a reciprocating mechanism (**C. 4 Lines 11-20**);

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) as applied to claims 1, 3, 5 above, and in further view of Seiki (US Patent No. 5,108,634).

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Kwon does not teach that the oil is provided with a phosphorous extreme pressure additive, but Seiki does.

Seiki teaches:

limitations from claim 4, wherein phosphorous extreme pressure additive is added to a refrigerant oil (**C. 3 Lines 49-51 and C. 4 Lines 13-17**);

It would have been obvious to one having ordinary skill in the art of compressors to use a pressure additive as is taught by Seiki in order to increase the effectiveness of the oil in under pressures created by the compressor.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) as applied to claims 1, 3, 5 above, and in further view of Nagai et al (US Patent No. 6,054,224).

Kwon teaches:

limitations from claim 6, an electric motor (**FIG. 2 (26) C. 4 Lines 14-15**), for driving a compression mechanism (**28**);

Kwon does not teach that the motor uses a low oligomer insulating material, but Nagai does.

Nagai teaches:

limitations from claim 6, an insulating material for an electric motor having low amounts of oligomers, for use in refrigeration systems, specifically compressors, **C. 1 Lines 5-15**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use low oligomer type insulation on a motor as taught by Nagai in order to reduce the environmental damage caused by the compressor, C. 1 Lines 10-15 and Lines 42- 45.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2), in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 and 6 above, and in further view of Egawa et al (US PGPub No. 2006/0166844 A1).

Kwon and Nagai disclose and teach of the compressor in claims 1 and 6.

Neither Kwon nor Nagai discuss evaporation temperature, but Egawa does.

Egawa teaches in Page 1 paragraphs [0001, 0002, 0007-0009] of a lubricating oil composition having low evaporation loss and low viscosity; paragraph [0002] teaches specifically that combinations of oils having different evaporation temperatures results in unwanted viscosity levels; paragraph [0008] further teaches that kinematic viscosity is related to the evaporation losses of an oil; **It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to seek a consistent evaporation temperature across the oil composition in order to accurately control the properties (viscosity) of the oil during use. Furthermore, because the kinematic viscosity is directly related to the evaporation of the oil, it is obvious that oils within a small range of viscosities would likely have similar evaporation temperatures.**

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 above, and in further view of Hannibal (US Patent No. 4,252,506).

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Kwon and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Nagai explicitly teach a distributed winding, but Hannibal does.

Hannibal teaches:

limitations from claim 8, an electric motor, **FIG. 3 (16) C. 3 Line 22**, in a compressor, **FIG. 3 (10) C. 3 Lines 20-21**, wherein the motor is a distributed winding motor, **C. 5 Lines 8-11**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Hannibal and as is known in the art into the compressor motor of Kwon in order to meet the driving demands of the compressor and system.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1,2, 3, 6 and 13 above, and in further view of Yamazaki et al (US Patent No. 6,940,204 B2).

Kwon and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Nagai explicitly teach a concentrated winding, but Yamazaki does.

Yamazaki teaches:

limitations from claim 9, wherein an electric motor for a compressor is a concentrated winding motor **(C. 1 Lines 15-19 and 27-37)**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Yamazaki into the compressor motor of Kwon in order to reduce the size of the motor and compressor (C. 1 Lines 27-37 of Yamazaki).

Claims 2, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) as applied to claims 1-3, 5 above, and in further view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120).

Kwon discloses and teaches of the compressor in claim 1.

Kwon does not teach the oil characteristics (boiling point, percentages) of claim 2, but Mills does.

Mills teaches:

limitations from claim 2, a refrigeration oil composition for a compressor having multiple components (naphthenic oil and paraffinic oil), wherein a characteristic (naphthenic) component makes up 50-75 percent of the blend and the other characteristic component (paraffin oil) makes up 25-50 percent of the blend (**C. 3 Lines 7-14, these ranges overlap with the claimed ranges**);

Mills does not specifically teach characteristic boiling point ranges for each component, Mills does teach that paraffin oils would be added to provide a high (higher than naphthenic) boiling point portion (**C. 2 Lines 51-54**);

Bowers teaches a naphthenic oil having a boiling point of less than 300°C that is appropriate for use in a refrigerant composition (**C. 3 Lines 6-11**);

When combined, the refrigerant oil compositions of Mill and Bowers would create an oil having a characteristic (naphthenic oil) with a boiling point below 300°C and a volume ratio between 50-70%; and a second oil characteristic (paraffin oil) with a higher boiling point than the first component and a volume ration between 10-30%;

Neither Mills nor Bowers teaches a specific boiling point value for the paraffin oil. However, it would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use a paraffin oil within the range of claim 2 (note that Mills teaches the paraffin oil as

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having a higher boiling point than the naphthenic oil) in order to reduce coke deposits, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use the oil composition as taught by Mills and modified by Bowers in the compressor as taught by Kwon in order to reduce coke deposits and oil decomposition (C. 2 Lines 43-50).

limitations from claim 10, wherein the refrigerant is R600a **(C. 5 Lines 31-46)** and the oil is a mineral oil or synthetic **(C. 5 Lines 50-55)**;

limitations from claim 12, wherein the compression mechanism is a reciprocating mechanism **(C. 4 Lines 11-20)**;

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) as applied to claims 1-3, 5 above, and in further view of Seiki (US Patent No. 5,108,634).

Neither Kwon nor Mills nor Bowers teaches that the oil is provided with a phosphorous extreme pressure additive, but Seiki does.

Seiki teaches:

limitations from claim 11, wherein phosphorous extreme pressure additive is added to a refrigerant oil **(C. 3 Lines 49-51 and C. 4 Lines 13-17)**;

It would have been obvious to one having ordinary skill in the art of compressors to use a pressure additive as is taught by Seiki in order to increase the effectiveness of the oil in under pressures created by the compressor of Kwon as modified by Mills and Bowers.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) as applied to claims 1-3, 5 above, and in further view of Nagai et al (US Patent No. 6,054,224).

Kwon teaches:

limitations from claim 13, an electric motor **(FIG. 2 (26) C. 4 Lines 14-15)**, for driving a compression mechanism **(28)**;

Kwon does not teach that the motor uses a low oligomer insulating material, but Nagai does.

Nagai teaches:

limitations from claim 13, an insulating material for an electric motor having low amounts of oligomers, for use in refrigeration systems, specifically compressors, **C. 1 Lines 5-15**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use low oligomer type insulation on a motor as taught by Nagai in order to reduce the environmental damage caused by the compressor of Kwon as modified by Mills and Bowers; C. 1 Lines 10-15 and Lines 42- 45 of Nagai.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2), in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224.) as applied to claims 1, 2, 3, 5, 6 and 13 above, and in further view of Egawa et al (US PGPub No. 2006/0166844 A1).

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Kwon, Mills, Bowers and Nagai disclose and teach of the compressor in claims 1, 2 and 13.

Neither Kwon nor Mills nor Bowers nor Nagai discuss evaporation temperature, but Egawa does.

Egawa teaches in Page 1 paragraphs [0001, 0002, 0007-0009] of a lubricating oil composition having low evaporation loss and low viscosity; paragraph [0002] teaches specifically that combinations of oils having different evaporation temperatures results in unwanted viscosity levels; paragraph [0008] further teaches that kinematic viscosity is related to the evaporation losses of an oil; **It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to seek a consistent evaporation temperature across the oil composition in order to accurately control the properties (viscosity) of the oil during use. Furthermore, because the kinematic viscosity is directly related to the evaporation of the oil, it is obvious that oils within a small range of viscosities would likely have similar evaporation temperatures.**

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1-3, 5, 6 and 13 above, and in further view of Hannibal (US Patent No. 4,252,506).

Kwon and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Nagai explicitly teach a distributed winding, but Hannibal does.

Hannibal teaches:

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limitations from claim 15, an electric motor, **FIG. 3 (16) C. 3 Line 22**, in a compressor, **FIG. 3 (10) C. 3 Lines 20-21**, wherein the motor is a distributed winding motor, **C. 5 Lines 8-11**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Hannibal and as is known in the art into the compressor motor of Kwon as modified by Nagai and Mills and Bowers. in order to meet the driving demands of the compressor and system.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Mills et al (US Patent No. 3,715,302) in view of Bowers (US Patent No. 6,476,120) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 2, 6 and 13 above, and in further view of Yamazaki et al (US Patent No. 6,940,204 B2).

Kwon and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor **(26)** with windings, **FIG. 2 (42) C. 4 Lines 30-31**;

Neither Kwon nor Nagai explicitly teach a concentrated winding, but Yamazaki does.

Yamazaki teaches:

limitations from claim 16, wherein an electric motor for a compressor is a concentrated winding motor **(C. 1 Lines 15-19 and 27-37)**;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Yamazaki into the compressor motor of Kwon as modified by Nagai and Mills and Bowers in order to reduce the size of the motor and compressor (C. 1 Lines 27-37 of Yamazaki).

Response to Arguments

Applicant's arguments filed 12/16/2008 with respect to claim 1 have been fully considered but they are not persuasive.

Applicant argues that the Kwon reference does not teach an oil with ISO viscosity between VG3 and VG8. However as pointed out in the rejection of claim 1 above, Kwon discloses **(in C. 3 Lines 38-40)** a viscosity range for the lubricant used in the compressor **(mm²/s is a known equivalent to centistokes (cst))** that is equivalent to an ISO viscosity within applicant's claimed range.

Applicant's arguments with respect to claim 2 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/C. B./
Examiner, Art Unit 3746